



Noteworthy Collections of New Mexico Flora

Robert C. Sivinski¹

The most important specimens in botany are those attributed to a new taxon (type specimens). After that, additional collections will further document distribution, phenology and morphology, and some of these are noteworthy. What constitutes a noteworthy plant collection? For me it has usually been one of three events:

1. Collection of a taxon that is a new record for the state where it is collected (state record);
2. Voucher of a plant population with a Wow! factor (e.g. interesting range disjunctions, character variations like an unusual flower color);
3. New location voucher of a vulnerable plant species of conservation concern.

I have usually ignored county distributions, but have recently found them useful in studying the phylogeography of New Mexico. Allred et al. (2020) published New Mexico county distribution maps of the flora compiled by experts who knew the herbarium records and could eliminate most misidentified specimens. Patterns emerged. Peripheral species that are a tiny part of the state flora became more evident; species confined to ecological niches in mountain ranges, deserts, or geologic outcrops may come into view; and they document the starting places or spread of potentially invasive non-native plants. Sporadic distributions of wetland species confined to calcareous springs might indicate new locations of those rare habitats. I do consider arid-land springs and their flora to be noteworthy.

Study of New Mexico phylogeography is becoming further enhanced by photo documentation with the iNaturalist smart phone app used by biologists and amateur naturalists. This method has the advantage of all records being a photograph, whereas most herbarium specimen records are not yet digitally imaged. Recognizing plants to the species or subspecific level from photographs varies among taxa and within the broad range of image and specimen quality, but surprisingly, Research Grade iNaturalist observations have been found to have a low misidentification rate similar to digitized herbarium specimen misidentification rates (White et al. 2023). iNaturalist does have some current limitations for the study of phylogeography or regional plant diversity. It is a fairly new method with observations of relatively few plants compared to the many thousands of herbarium specimens of all New Mexico taxa that have accumulated over more than 170 years of botanical exploration. Few New Mexico botanists are perusing iNaturalist photos and taking the time to identify them, which means that many of the photos and Research Grade iNaturalist records have not been examined by a specialist. Amateur naturalist photos are also greatly biased towards common, dominant plants or showy flowers and less representative of uncommon or difficult to photograph taxa.

Both iNaturalist and public databases for digital herbarium specimen images (e.g. SEINet) suffer from the practice of cloaking or withholding specimen locations for species of conservation concern. This is an unnecessary and very unhelpful practice that should only be used for the few plants that are vulnerable to commercial exploitation or hobbyist collection. Hiding vital location information makes it unavailable to researchers, conservationists and land managers who need it most, but are put-off by all the extra effort to obtain it.

Yet iNaturalist is handy for botanical surveys and can supplement actual specimen collections. I have recently been making plant lists for some Santa Fe County Open Space parcels and collecting herbarium specimens of anything unusual. My 2023 field partner, Grace McCarthy (UNM-Natural Heritage), uses iNaturalist and brought me photos of several plants I had not seen. For instance, Grace recorded *Physaria intermedia* (<https://www.inaturalist.org/observations/175951362>)

¹ Museum of Southwestern Biology – Herbarium (UNM), University of New Mexico, Albuquerque; bsivinski@cybermesa.com

west of Santa Fe at its 1847 type collection location (*Fendler 38*, GH). I had missed it during our walking survey. I still prefer to make herbarium collections because of their relative permanence (compared to Internet photos) and the ability to study an actual specimen in hand. Our field work did acquire several new specimen records of the Santa Fe County flora, which I include here so you can pencil them into your hard copy of *Flora Neomexicana III* (Allred et al. 2020).

Nomenclature and format follow Allred et al. (2020). Non-native taxa are marked with an asterisk (*) and comments are preceded by a diamond (♦). All specimens are deposited at the Museum of Southwestern Biology and a SEINet URL for the UNM Herbarium specimen image is given for each collection record. Just copy and paste the URL to your browser and click on the image for a closer look at the plant and label.

STATE RECORDS

ASTERACEAE

**Tanacetum parthenium* (Linnaeus) Schulz Bipontinus (Fig. 1)

USA, **New Mexico, Santa Fe County**, Sangre de Cristo Mts., trail along Little Tesuque Creek 1 km below the trailhead at the first bridge on Ski Basin Road. 35.726867 -105.897545 WGS84; elev: 2,252 m. Sandy alluvium of valley bottom with *Melilotus officinalis*, *Verbascum thapsus*, *Grindelia squarrosa*. Only 2 plants seen. 11 Aug 2022. *Robert C. Sivinski 9595* (UNM). https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0140/UNM0140755_med.jpg

USA, **New Mexico, Santa Fe County**, Santa Fe, dry channel of Santa Fe River 0.9 km NE of Siler Road Bridge. 35.670403 -105.990585 WGS84, elev: 2040 m. Sandy alluvium of bottom and riprap side of channel with *Melilotus officinalis*, *Salix exigua*. Several scattered plants. 27 Jul 2023. *Robert C. Sivinski 9723* (UNM) with Grace McCartha.

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143842.jpg

♦ First records of this species outside of cultivation in New Mexico. A previous 1925 New Mexico specimen (*Bro. A. Benedict 384*, UNM) is a garden collection from the College of Santa Fe. These recent collections are garden escapes or recent introductions that are becoming established in riparian habitats in and near the City of Santa Fe.

LOASACEAE

Mentzelia pterosperma Eastwood (Fig. 2)

USA, **New Mexico, San Juan County**, north side of Hwy 64, 4.75 road miles east of North Hwy 550 intersection in Bloomfield, 36.71586 -107.89538 WGS84, elev: 1725 m. Gypseous sandy soil with *Sporobolus nealleyi*, *Ephedra torreyana*, *Krascheninnikovia lanata*. Several plants. Corollas not open at 1800 hrs. 23 May 2023. *Robert C. Sivinski 9674* (BRY, NAU, UNM) with Jacob Lobato.

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143847_a.jpg

♦ First record for New Mexico. This is an approximately 100-mile southeastern range extension from near Mexican Hat, Utah for this Great Basin/Colorado Plateau species. I was so excited about collecting this plant, I forgot to take a photo. Fortunately, Jacob snapped a picture (Fig. 2). The small grass clumps in his photo are *Sporobolus nealleyi*, which is a new county record for this gypsophilous grass that should be vouchered in summertime when flowering.

OTHER NOTEWORTHY RECORDS

BRASSICACEAE

Physaria pruinosa (E.L. Greene) O'Kane & Al-Shehbaz (Fig. 3)

USA, **New Mexico, Rio Arriba County**, Rio Brazos valley, south side of Hwy 512, 2.8 road miles SE of Hwy 64, 36.743361 -106.516811 WGS84, elev: 2300 m. Disturbed south side of road; sandy clay eroded from Mancos shale outcrop with *Ericameria nauseosa*, *Bromus inermis*, *Astragalus praelongus*, *Cynoglossum officinale*, *Cirsium arvense*. Silicles slightly compressed; 7 plants. 21 May 2023. *Robert C. Sivinski 9663* (UNM).

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143801.jpg

♦ This rare local endemic is mostly confined to the Pagosa Springs region of Colorado and is previously known in New Mexico from only one Rio Arriba County location close to the state border (*O'Kane 4822B*, SJNM) The Brazos valley record extends the range 21 miles further southeast into New Mexico. This tenuous population consists of only seven (now six) 2- or 3-year-old plants on slope erosion sediment that has been pushed to the highway shoulder during road maintenance. The seeds likely originated from the natural shale outcrop on the opposite side of the highway, but no plants were visible on the toe of that slope and they may occur further up-slope.

CLEOMACEAE

Cleomella longipes Torrey

USA, **New Mexico, Grant County**, City of Rocks State Park, Faywood Ciénega, 1 km NE of Faywood Hot Spring, 32.56153 -107.98786 WGS84, elev: 1535 m. Dry alkaline margins of the ciénega with *Sporobolus airoides*, *Cleomella refracta*. 22 Sep 2023. *Robert C. Sivinski 9787* (UNM) with Chris Sanderson.

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143843.jpg

♦ First record for Grant County and only the fourth location for New Mexico. This uncommon plant ranges from southeastern Arizona, southwestern New Mexico and adjacent Chihuahua, then down the Rio Grande basin to the Big Bend region. Vanderpool (2010) describes the habitat as saline or alkaline flats, which is accurate, but in New Mexico (and likely elsewhere) these soils are spring deposits. It is not a wetland plant, but its habitats here are alkaline evaporites of arid-land springs and seeps that are vulnerable or already extinguished.

CYPERACEAE

Schoenus nigricans Linnaeus

USA, **New Mexico, Guadalupe County**, Santa Rosa, ca 0.5 km SW of Perch Lake, seeping south side of mound spring (locally called Milagro Spring), 34.92149 -104.66746 WGS84, elev: 1400 m. Wet soil of alkaline ciénega with *Schoenoplectus americanus*, *Fimbristylis puberula*, *Eleocharis rostellata*, *Cirsium wrightii*. Tufted perennial; few dozen plants. 18 Sep 2021. *R.C. Sivinski 9505* (NAU, UNM) with Larry Stevens.

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0137/UNM0137405_lg.jpg

♦ First record for Guadalupe County, and only the second record for the state. Both New Mexico populations occur on calcareous springs and are very small. The Otero County population is fewer than a dozen plants (*Licher 5852*, NAU). This wetland species is widespread in arid regions of the world and Allred et al. (2020) give it non-native status in New Mexico. It is more likely a native species in this state since both populations are in unique habitats with other uncommon, spring-dependent, native plants and the New Mexico distribution falls in between native populations on calcareous springs and spring brooks in south-central Texas and a few Mojave Desert springs in southern Nevada and adjacent California.

ORCHIDACEAE

Epipactis gigantea Douglas ex Hooker (Fig. 4)

USA, **New Mexico, Santa Fe County**, Cerrillos Hills State Park, Yoh Toh Spring, 1.25 miles N of RR crossing at Cerrillos on CR50, 35.452518 -106.122399 WGS84, elev: 1800 m. Wet soil with surface crust with *Salix exigua*, *Typha domingensis*, *Juncus balticus*, *Muhlenbergia asperifolia*. Population of a few hundred stems in 5 x 5 m area. 31 May 2022. *Robert C. Sivinski 9424* (UNM).

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0141/UNM0141753.jpg

♦ First collection record for Santa Fe County. This wetland habitat conforms to all New Mexico populations of this orchid, which are consistently confined to calcareous springs and seeps. A previous SEINet record for Santa Fe County is an inaccurate name applied to a specimen of *Epipactis helleborine*. iNaturalist records of *E. gigantea* in Santa Fe County are obscured locations and say nothing about the habitats or populations.

SANTA FE COUNTY RECORDS

ALISMATACEAE

Alisma trivale Pursh [*Sivinski 9708* with McCartha, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143845.jpg

ASTERACEAE

**Bidens bipinnata* Linnaeus [*Sivinski 9725* with McCartha, UNM]

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Brickellia oblongifolia Nuttall [*Sivinski 9554*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0142/UNM0142629.jpg

BRASSICACEAE

Physaria pinetorum (Wootton & Standley) O'Kane & Al-Shehbaz [*Sivinski 9680*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143846.jpg

CARYOPHYLLACEAE

Drymaria glandulosa K. Presl [*Sivinski 9582*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0140/UNM0140758.jpg

Drymaria molluginea (Lagasca) Didrichsen [*Sivinski 9548*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0142/UNM0142630.jpg

CYPERACEAE

Carex vulpinoidea Michaux [*Sivinski 9700* with McCartha, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143974.jpg

JUNCACEAE

Juncus articulatus Linnaeus [*Sivinski 9707* with McCartha, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0143/UNM0143844.jpg

NYCTAGINACEAE

Mirabilis nyctaginea (Michaux) MacMillan [*Sivinski 9578*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0140/UNM0140820.jpg

ONAGRACEAE

Oenothera canescens Torrey & Frémont [*Sivinski 9543*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0141/UNM0141758.jpg

RANUNCULACEAE

****Ranunculus repens*** Linnaeus [*Sivinski 9704* with McCartha, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0144/UNM0144123.jpg

VERBENACEAE

Phyla cuneifolia (Torrey) Greene [*Sivinski 9544*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0141/UNM0141826.jpg

VIOLACEAE

Pombalia verticillata (Ortega) Paula-Souza [*Sivinski 9569*, UNM]

https://swbiodiversity.org/imglib/seinet/swnode/UNM_VascularPlants/UNM0142/UNM0142794.jpg

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Figure 1. *Tanacetum parthenium*, Santa Fe Co. NM.



Figure 2. *Mentzelia pterosperma*, San Juan Co. NM.



Figure 3. *Physaria pruinosa*, Brazos Valley, Rio Arriba Co. NM.



Figure 4. *Epipactis gigantea*, Santa Fe Co. NM.